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RAIL-ROAD NEWS.

Railroads of Massachusetts.

Massachusetts has constructed 1,150 miles of Railroad, at a cost of $52,000,000; and the other New England States have constructed 1,799 miles more at a cost of $55,000,000. To these might be added the Northern N. Y. (or Ogdensburg) Railroad, which is virtually a New England road, making a total of about 3,000 miles of railroad, constructed at a total cost of upwards of $110,000,000.

The gross earnings in 1850, of all the railroads in Massachusetts, and of those that are partly in Massachusetts and partly in adjoining States, were $6,903,526. The net earnings during the same time, were $3,480,347. The cost of these roads was $53,264,000. The net income was therefore more than 6 per cent. on the total cost.

The number of passengers transported over these roads during the same time was 8,973,681, which gives an average of 28,754 a day for 312 days.

Hempfield Railroad.

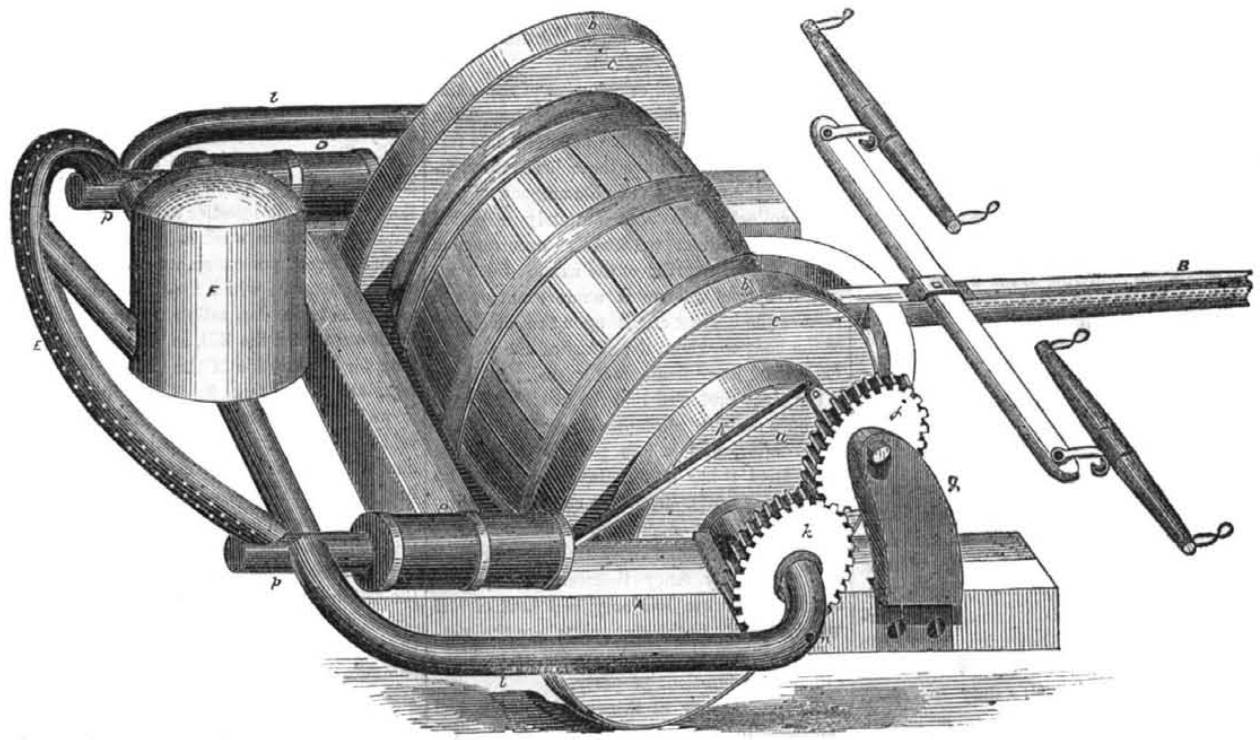
We learn from the Wheeling Gazette that the County Court of Ohio County have authorized a vote to be taken on the fourth Thursday of October, upon the question whether Ohio county will subscribe an additional sum of $150,000 to the Hempfield road. This subscription, if made, and of which there appears to be not the least doubt, will make the total subscription of Ohio Coun y $300,000. In addition to this, the citizens of the county have subscribed individually for upwards of $150,000, and the City Council of Wheeling $50,000—making a total of upwards of $500,000 subscribed. Washington and Westmoreland counties, in Pennsylvania, are each counted upon for an equal or larger amount. The road, it is stated, between Wheeling and Washington, will be put under contract early in November next.

The Hudson River Railroad is now finished from New York to Troy: it will be opened throughout next week, and passengers will have the pleasure of going from New York to Albany in four hours. Forty years ago it took as many weeks to sail up the North River.

The Great Drouth.

For the last six weeks there have not been above two or three showers of rain in New York City. If storms are peculiar to the equinoxial periods, then this season has been an exception to the rule. The country round is suffering greatly for the want of water; the brooks and wells are all dried up, and the pastures are brown as the heath of the desert. The east winds generally bring clouds and rain, but the wind was in that quarter for two days, last week, and only a few drops of rain fell. It is the longest dry spell that we have had for a number of years. As is usually the case, we will no doubt have a long period of rainy weather after this. Only that the country is suffering greatly for the want of rain, we could almost wish for such weather all the time. The air has been bracing, and the skies clear.

WATER SPRINKLER FOR STREETS, &c.---Fig. 1.



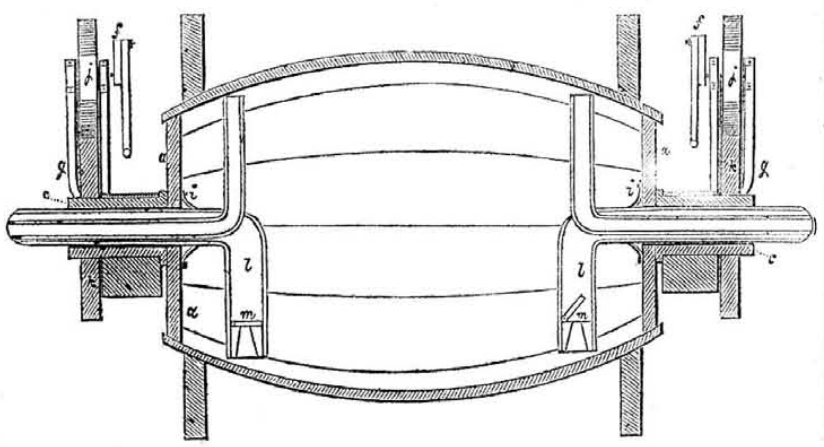
The accompanying engravings represent a Water Sprinkler invented by Mr. J. D. Price, of Smithsburg, Washington Co., Maryland, and secured to him by patent.

Fig. 1 is a perspective, and fig. 2 a vertical sectional view, showing the pipes as they communicate with the interior of the revolving water vessel.

The machine consists of a water vessel by which the water is carried and from which it is drawn by force pumps; the latter being operated by the revolving vessel, expel the water in a shower through numerous perforations in a curved pipe at the hinder end of the machine thus sprinkling a broad strip of ground as the machine is drawn forward.

In the engraving, A is a strong frame to which the other portions of the machine are attached, and which is furnished with a pole, B, or with shafts to which the team is hitched. The water vessel is most conveniently suitably hooped upon two heads, *a a*, it is encircled at each extremity by felloes, C C, and tyres, *b b*, which thus form the wheels upon which the machine runs. Each head is fitted with a hollow gudgeon, *c*, which is received in a box secured to the adjoining side bar of the frame. Two single acting force pumps, D D, are mounted upon the hinder part of the frame; the piston rod of each pump is passed through an eye in a bale, secured to the open end of its pump barrel. The pump pistons are each put in motion by a crank, *f*, secured to a shaft supported by a forked standard, *g*, on the frame of the machine; each piston is connected with its respective crank pin by a connecting rod, *h*, which is forked to embrace the piston rod and bale. The shaft has a cog wheel, *j*, mounted upon it, which gears into a cog, *k*,

Figure 2.



mounted upon a projecting extremity of a hollow gudgeon. The barrel of each force pump is connected with the interior of the water vessel by a suction pipe, *l*, which passing through the hollow gudgeon is bent downwards so as to draw the water from the lower part of the vessel. The vacant space which intervenes between the suction pipe and the hollow gudgeon is packed to prevent leakage, either by a collar of leather, *i*, or by some other suitable means. The lower extremity of the suction pipe is fitted with a valve, *m*, to prevent the reflux of water from the pump barrel when the piston is forced inwards; and each is furnished with an air pipe, *n*, which passing through it into the water vessel is bent upwards to prevent the water from escaping through it when the vessel is full; a discharge pipe is fitted to the hinder end of each pump barrel; these are also furnished with valves, which close as the piston is withdraw in its barrel to prevent the return of water into it, and their hinder extremities are connected by a curved pipe, E, which is pierced with numerous small holes.

The water vessel is furnished with a bung hole through which it can be filled, the connecting rods are disengaged from their crank pins and the machine is drawn to the place where the water is to be sprinkled. The connecting rods are then put in gear, and as the machine is drawn forward, the pump pistons being driven by the revolving vessel, eject the water forcibly through the perforations in the curved pipe to a considerable distance on each side of the machine.

This machine, from the simplicity of its parts, and its efficiency is particularly applicable to the watering of the streets of cities, and as the water which constitutes the great weight of the machine is rolled forward in the revolving vessel, but comparatively little power is required to perform the work.

More information may be obtained by letter addressed to the inventor.

Metalic Paint.

A quantity of ground zinc stone has been shipped to Richmond as an article of commerce. The mineral was recently discovered in Rockbridge County, Virginia, and is transported to market by way of James River and Kanahwa Canal. This curious stone has the remarkable quality, when finely pulverized, mixed with flaxseed oil, and spread on any surface, of reforming itself into stone, by a reunion of its rock particles; thus constituting a firm and hard rock covering, or coat of mail—impervious to water and proof against fire. Its value has been well and satisfactorily tested, and if found to succeed as well hereafter, as formerly, for roofs, &c., it will, to a certain extent, supersede slate, tin, sheet iron, and kindred appliances.

Terrible Explosion.

For all that has been said on this subject, these public murders are as common as ever. On the 21st inst., the steamboat James Jackson, exploded at Shawneetown, Illinoise, and no less than 35 persons were either killed or wounded. The government inspection system is a mere sham. A law should be made compelling all steamboats to be built upon the low pressure principle.

Erratum—Tilton's Violin.

The article last week in our columns about this improvement, stated that Mr. Tilton lived in Cannelton, Ala.: it should have read Carrolton; the error was made in mistaking the letters *r* in the MS.

The Fastest Steamboat Running on Record.

The steamboat New World ran from this city to Albany, on Tuesday of last week: her running time was six hours and fifty-five minutes. This is something over twenty miles per hour for the whole distance, or nearly equal to our railroad speed.

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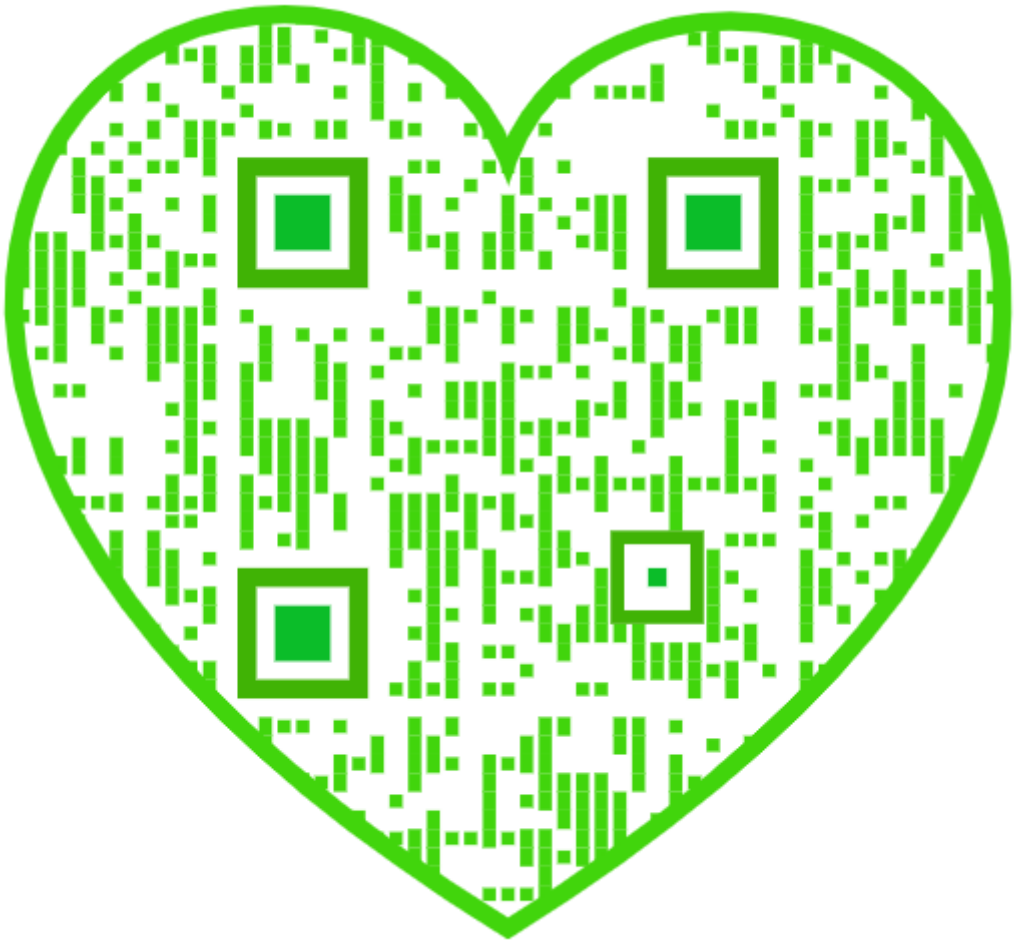

MISCELLANEOUS.

Foreign Correspondence.

LONDON, Sept. 12, 1851.

The gratifying news to Americans has arrived here, that our little honorable voluntary expedition fitted out for the search of Sir John Franklin has discovered the first camping ground of the crew of the Erebus. The graves with the names of the deceased on them has been sent to the Lords of the Admiralty, by surgeon Kane of the expedition.

With respect to the lock controversy, we are glad to hear that Messrs. Bramah intend raising no captious objections as to the award of the arbitrators, having determined to pay Mr. Hobbs the 200 guineas reward offered by them. We hear that the lock exhibited by Mr. Hobbs is itself to be immediately tested by an English mechanic.

The English lock makers especially Chubb & Son, have betrayed a mean and despicable spirit. After Mr. Hobbs opened their lock, they wrote the following to the Times:

"It is stated that Mr. Hobbs, the American pick-lock, accepted the challenge we had given him to try his skilll upon one of our locks, and has succeeded. Will you allow us to state that this is wholly false, as we have twice challanged him to a fair trial, and he has refused in both cases." Mr. Hobbs could not remain silent before such a gross falsehood, and he immediately sent the following documents to the Times which were published:—

Sir—I would gladly abstain from offering any statement of mine upon the present position of what is called the "Lock Controversy." In consequence, however, of a note signed "Chubb & Son, which appears in your paper this morning, I feel it a duty to myself and the public to put you in possession of two documents in reference to the alledged picking of one of Messrs Chubb's locks by me, and request you doing me a favor of inserting them in your columns. After perusing them it will be for the public to determine how far I have been successful in picking their lock.

Your obedient servant, A. C. HOBBS.

Crystal Palace, Sept. 3.

[Enclosure No. 1.]

Gentlemen—An attempt will be made to open a lock of your manufacture on the door of a strong room at 34 Great George street, Westminster, to-morrow, Tuesday, at 11 o'clock A. M. You are respectfully invited to be present to witness the operation.

Yours respectfully, A. C. HOBBS.

"American Department, Crystal Palace, July 21.

"To Messrs Chubb & Son, St. Paul's Churchyard.

"N. B.—Messrs. Chubb took no notice of this communication.

[Enclosure No. 2.]

LONDON, July 22, 1851.

"We, the undersigned, hereby certify that we attended with the permission of Mr. Bell of 34 Great George street, Westminster, an invitation sent to us by A. C. Hobbs, of the city of New York, to witness an attempt to open a lock throwing three bolts, and having six tumblers, affixed to the iron door of a strong room or vault, built for the depository of valuable papers, and formerly occupied by the agents of the South-Eastern Railway Company; that we severally witnessed the operation, which Mr. Hobbs commenced at 35 minutes past 11 A. M., and opened the lock within 25 minutes. Mr. Hobbs having been requested to lock it again with his instruments accomplished it again in the short space of 7 minutes, without the slightest injury to the lock or door. We minutely examined the lock and door (having previously had the assurance of Mr. Bell that the keys had never been accessible to Mr. Hobbs, he having had permission to examine the keyhole only.) We found a plate at the back of the door with the following inscription:—"Chubb's new patent (No. 161,461,) St. Paul's Churchyard, London, maker to Her Majesty."

Mr. Hardley, 26 Great Earl street.

Mr. William N. Marshal, 42 Charing cross.

Mr. W. Armstead 35, Belitha-villas Barnsbury park.

Mr. G. R. Porter, Putney-heath.

Mr. F. W. Wenham, Effra-vale-lodge, Brixton.

Mr. A. Shanks, Robert street, Adelphi.

Mr. T. Shanks, Robert street, Adelphi.

Col. C. W. Clifton, Morley's Hotel.

Mr. Elijah Galloway, 42 Southampton buildings.

Mr. Paul R. Hodge, 9 Adam street, Adelphi.

Mr. Charles H. Peabody, 1 Norfolk street, Strand.

I am thus particular about these facts, not only for present information, but for future reference; as the time may come when the efforts of Mr. Hobbs will be disputed here when his back is turned, but with this testimony in the Sci. Am., for reference, all untruths can be nailed to the table.

Among the diurnal experiences of the exhibition none are more curious or suggestive than those which its police arrangements furnish. So excellent have those been throughout, that the vast and valuable amount of property collected has been minutely inspected by several millions without the occurrence of a loss by theft worthy of the name. Such vigilant superintendance is unprecedented, and reflects the highest credit upon the efficiency of the body to whom the safety of the Crystal Palace and its contents is intrusted. So well is the place protected that the swell mob have not once dared to attempt a concerted action in the interior, and where pocket-picking has been tried it has almost invariably been by clumsy performers from the country "single-handed." Their operations at once attract the attention of some sharp-sighted detective, and while they fancy themselves in perfect security they are suddenly laid hold of and marched away to the station, where the persons they have plundered soon follow to identify and redeem their property.

A great number of things have been lost and found in the exhibition, and it was remarked that the number of articles belonging to female paraphernalia greatly predominated some of these being of a kind which it seemed almost impossible to drop or leave behind accidentally.

Of all of the stray property found at the exhibition and handed over to the police for the discovery of ownership, the most remarkable and the most perplexing items come under the head of children. But for the intervention of the force the Royal Commission must have been by this time in the delicate predicament of assuming the paternity of some 80 or 90 boys and girls who had lost their parents or friends in the building. With such heavy family cares, what would have become of the surplus? Happily the station-house at Prince's Gate provided a mode of escape, and thither all the stray little ones have been regularly sent; one boy was kept there all night, and a bed having been made for him with greatcoats, he was next morning forwarded to his relatives at Winchester. Another little fellow was taken to lodgings in Brampton Row, and was claimed there next day by his friends from Epsom. From 18 to 20 children have been forwarded to various parts of town by the constables going off duty, and no less than 60 have been claimed at the station by their parents.

Verily this exhibit on has exhibited some of the strangest sights and acts ever witnessed in the history of the world.

With reference to the removal of goods from the exhibition when it closes, it has been determined to leave exhibitors almost entirely to themselves in that matter. Each must look after his own property, and get it removed as speedily as possible. The two blank days intervening between Saturday the 10th and Wednesday the 15th of Oct., will be devoted to the clearing of space of packing operations by the removal of carriages and such like bulky objects. During that quiet interval, also, jewellers and silversmiths will be allowed to take away the valuable objects contributed by them. EXCELSIOR.

For the Scientific American.

Curious effects of Metallic Vibrations.

I have noticed singular effects from the vibration of metallic substances, which may be of interest to some of the readers of the Scientific American. When holding a small rod of hardened steel at nearly a direct line with the diameter of a grindstone going at a high speed, the vibrations will sometimes produce a shrill piercing sound, and if the steel be then held in the hand, it, the hand, will be burned as really as if grasping a hot iron, and yet the steel will be perfectly cold. I have lately burned my hand in this way so as to feel the effect for a day or two: the heat is not produced by friction, for the burning effect is not produced except the rod is held at a suitable angle to make it vibrate; and it will not produce the effect if it is constantly held in contact with the stone. L. P. S.

Cobalt, Ct.

The Patent Office---Its Architect.

In the article published on page 387, Vol. 6, illustrated with diagrams, by Mr. Robert Mills, Architect, exceptions are taken to the statements which were made in the article published by us in No. 20 of the same volume. Knowingly we never do injustice to the claims of any man, and we would not, on any consideration, willingly do injustice to Robert Mills; but having leisure this week to look over some documents in our possession, we proceed to make a few statements which appear to bear out the alledgments in our article referred to. Mr. Mills states that the Bill, as passed by the Senate, for the erection of the Patent Office, contemplated "a brick building with wooden floors," but the Committee of the House, who reported in favor of the Bill, uses this language, "The Committee on the Patent Office, having approved of the plan submitted, among others, by Wm. P. Elliot. for a fire-proof building, and having framed the bill making the appropriations for the erection of the same, upon the estimates and details furnished by him, do therefore recommend his plan for adoption by the President of the United States." This committee consisted of Gorham Parkes, James Harper, and Samuel F. Vinton. The Committee of the Senate, of which the Hon. John Ruggles was the Chairman, concurred in the above on the 4th of July 1838: two days afterwards Gen. Jackson signed the bills for the Treasury and Patent Office Buildings, using this language —"The plans hereby adopted, which are, in their general outlines, to be, as to the Treasury Building, that plan annexed by said Mills, and as to the Patent Office that annexed by said Elliott." Mr. Mills acknowledges that he followed substantially the outline of the plan approved by the President, but that a perspective of the whole façade was afterwards made at his office for exhibition. This we do not dispute; but plans of the various floors made by Mr. Elliott, with vertical, longitudinal, and transverse sections, and a perspective view, used to be (if they are not there yet) in the Patent Office. By an Act of Congress, passed in 1837, Mr. Elliott was paid $300 for drawings of the Treasury and Patent Office Buildings. These public documents would seem to render the statements in No. 20 incontrovertible.

New Window Sash Fastener.

Mr. J. B. S. Hadaway, of Uxbridge, Norfolk Co., Mass., has invented and taken measures to secure a patent for a very ingenious and beautiful fastener for windows. Quite a number of window fasteners have already been brought before the public, but we have seen none like this: there is a small box cast, with a neat short handle in it attached to a small vibrating plate catch, and this is put on the window sash, with the lever handle at the inside and the catch acting on the window frame (out of sight) to retain the window at any point. A spring in the small box makes the catch self-acting so as to keep it in its proper place and position, and all that has to be done is to touch the small handle spoken of, when it is desired to shove the window up or draw it down, when it becomes free and the window can be moved. There is one thing about it, catch it must, and moved out of place it cannot be, unless a force is applied to the handle: it is a sure and a very neat fastener.

Improvement In Securing Anvils and other like tools to Benches.

Mr. John Wright, of Rochester, has taken measures to secure a patent for an improvement, which he has recently invented, to secure, in a superior manner, anvils, &c., to benches. He employs a vertical shank attached to the bottom of the anvil; said shank has a recess cut around it near its lower end forming a knob, and the shank is made to pass through the top board of the bench, in which is a semi-circular plate with a curved slot through it, and fixed to the said bottom board; the curved slot has flanches on its sides which form a semi-circular inclined plane, fitting in the recess of the shank of the anvil, as spoken of above, and bearing against the upper surface of the shank in the recess, so that when the semi-circular plate is turned, the inclined plane draws down the shank and holds the anvil firmly to the bench. It is a very simple and complete method of securing such tools to benches, and it deserves attention.

Improvement in Picking and Furrowing Mill Stones.

Messrs. S. W. & R. M. Draper., of Boxborough, Middlesex Co., Mass., have invented and taken measures to secure a patent for useful improvements in picking, furrowing, and dressing mill stones of every description.—They employ a machine having a vibrating shaft, (the motion of which is communicated by a cam) which carries a hammer and pick by which the stone is operated, the said hammer being capable of sliding along the shaft, the said shaft and frame being adjustable to admit of the hammer and pick moving in various directions across the stone, the pick being capable of adjustment to the hammer to vary the position of its edge while the strength of the blow is regulated by springs applied for that purpose.

Passages of the Atlantic Mail Steamers.---Quarter from July 2 to Sept. 28, 1851.

Africa (B.), arrived at N. Y., on Wednesday, 2nd July, at 10 A. M. Left Liverpool 21st June, at 2 P. M.—passage 10 d. 20 h.

Baltic (A.), arrived at N. Y., on Saturday, 5th July, at 5½ P. M. Left Liverpool, June 25th, at 6 3-4 P. M.—passage 9 d. 22 3-4 h.

Asia (B.), arrived at N. Y., July 16th, at 8½ A. M. Left Liverpool, July 5th, at 4 1-2 P. M.—passage 10 d. 16 h.

Pacific (A.), arrived at N. Y., Monday 21st July, at 9 P. M, Left Liverpool, July 9th, at 5 1-4 P. M.—passage 12 d. 3 3-4 h. Broke her port engine when 8 days out, made the rest of the passage with one engine.

Niagara (B.) arrived at N. Y., July 31st at 4 1-2 P. M. Left Liverpool 19th at M.—passage 12 d. 4 1-2 h.

Atlantic (A.), arrived at N. Y., on Sabbath, 3rd August at 6 A. M. Left Liverpool 23rd July at M.—passage 10 d. 18 h.

Arctic (A.), arrived at N. Y., on Monday, 11th August. at 7 A. M.—passage 11 d. 18 h.

Africa (B.), arrived at N. Y., Tuesday evening, August 12th, at 6 P. M.—passage from Liverpool 10 d. 5 h.

Baltic (A.), arrived at N. Y., Saturday, Aug. 16th at 6 A. M. Left Liverpool at 20 m. past 4 P. M. on the 6th—passage 9 d. 13 2-3 h., the fastest passage ever made across the Atlantic.

Asia (B.) arrived at N. Y., Thursday, August 28th, at 6 P. M. Left Liverpool 16th at 1 P. M.—passage 12 d. 5 h.

Atlantic, (A.), arrived at N. Y., Sept. 1st, at 5 A. M. Left Liverpool 20th August at 3 P. M. —passage 11 d. 14 h.

Niagara, (B.), arrived at N. Y., Thursday, 11th Sept., 4 1-4 P. M. Left Liverpool 30th August at M.—passage 12 d. 3 3-4 h.

Pacific (A.), arrived at N. Y. Sabbath, Sept 14th at 8 1-2 A. M. Left Liverpool at M. 1-2, on 3rd,—passage 10 d. 16 1-2 h. reported to have been below on previous evening.

Africa (B.), arrived at N. Y., on Wednesday, 24th Sept., at 7 A. M.—passage 10 d. 18h. 40 minutes.

Baltic (A.), arrived at N. Y., Sabbath, at 7 1-2 A. M. Left Liverpool Sept. 17th—passage 10 d. 23 h. 50 minutes.

It will be observed that the Asia, which had before the last quarter been considered much faster than the Africa, has been beaten by the latter; in fact, the Africa has shown herself to be a very fast sailer, having made her last passage in shorter time than the Baltic; but her shortest passage, 10 d. 5 h., was beaten by 16 h. by the Baltic's shortest; but next to the Baltic, she has made the best passages during the last quarter.

The Baltic made her three passages, this quarter, in 30 d. 11 h. 15 m. The Africa her three in 31 d. 19 h., a difference in favor of the Baltic of 1 d. 7 h. 45 m.

We shall review the number of passages made in one year in a subsequent article.

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Expose of Paine's Light.

This light has received, it seems, a most complete expose from Mr. Robert A. Fisher, a young scientific gentleman of great promise, in Providence, R. I. Last week we stated that the effect produced by Mr. Paine was known to us for twelve years. Our readers will find it fully described on page 62 of "Parnell's Chemistry:" the day after we went to press we received the "Manufacturers' and Farmer's Journal (Providence) giving an account of the expose. Mr. Paine, it seems, put up his apparatus on the second day of the Show, and on that evening had it burning for a short time, but it was not in good working order Having repaired the defect, it was kept burning for two hours, and gave a beautiful light, but on Saturday he returned to Worcester, leaving a notice appended to the apparatus, that it would be burning again on Monday evening, but it was not, on account of the sickness of Mr. Paine. On the following morning the apparatus was packed up and removed. On the first evening of the exhibition of the light, a very young man was seen standing before it, and examining the apparatus very closely, and Mr. Paine too. But it was enough.—He had it all. He left the hall for the laboratory of the Franklin Society, and commenced his experiments.

"On Monday, says the Journal, it was whispered about that an "opposition Paine's Light" was to be shown at the fair, but the apparatus hastily prepared, was not sufficient for a public exhibition, and it was postponed. The following day one was made of sufficient power, and on the last evening of the exhibition, though Mr. Paine's light had ceased to burn in Providence, one was shown and explained, not only fully equalling it in brilliancy, but produced by the same means and by a similar apparatus, and upon principles known and published several years since in scientific works.

Mr. Fisher was the man who did this. After having set his light burning, he went on to explain his apparatus. which was similar to Mr. Paine's, and consisted of a small gasometer filled with atmospheric air, and kept constantly supplied by a pump. From the gasometer, the air is conducted to a series of six tin cannisters, of the capacity of a pint, arranged around a central one, a little larger than the others. In the first six cannisters was placed a mixture of benzole, alcohol, and water, sufficient to fill them about one quarter full. The mixture was made without reference to the quantity of each ingredient, but in such proportion as by experiment was found to afford the best light. It was found that about one part benzole, one part alcohol, and half a part of water formed the most suitable mixture. The air was then made to pass continuously through each of these tin cannisters, in very minute bubbles, through the contained mixture. From the last of the series it passed to the central one, which is empty, and served as an air chamber, by which a more steady light could be obtained, and any particles of the mixture passing over were arrested. From this chamber a tube arose a couple of feet in height, at the top of which were the burners.

Thus the whole operation consisted in passing a stream of air through these small reservoirs of the volatile hydro-carbon benzole, in mixture with alcohol and water, the vapor of which is taken up at ordinary temperatures, in quantity sufficient to burn with a beautiful white light."

Mr. Fisher claimed to have discovered nothing new, but he merely wished to give credit to the real inventor, a M.. Mansfield, of England, as described in the Annals of Scientific Discovery, page 191 1850. This is true as respects the alcohol and benzole, but the discovery of the principle, as we have stated, is much older, and does not belong to Mansfield, as Mr. Fisher will perceive by reference to the work we mentioned. But really, we give the right hand of fellowship to Mr. Fisher for thus backing up with forcible demonstration, the very opinions we have more than once expressed about it, We bide our time,—that miserable humbug, the "New Centrifugal Motive Power" will yet sink the propagators of such errors into the slough of disgrace.

Washington Monument.

The Washington National Monument is now ninety-eight feet high. It is faced with beautiful white marble, from quarries in Maryland.

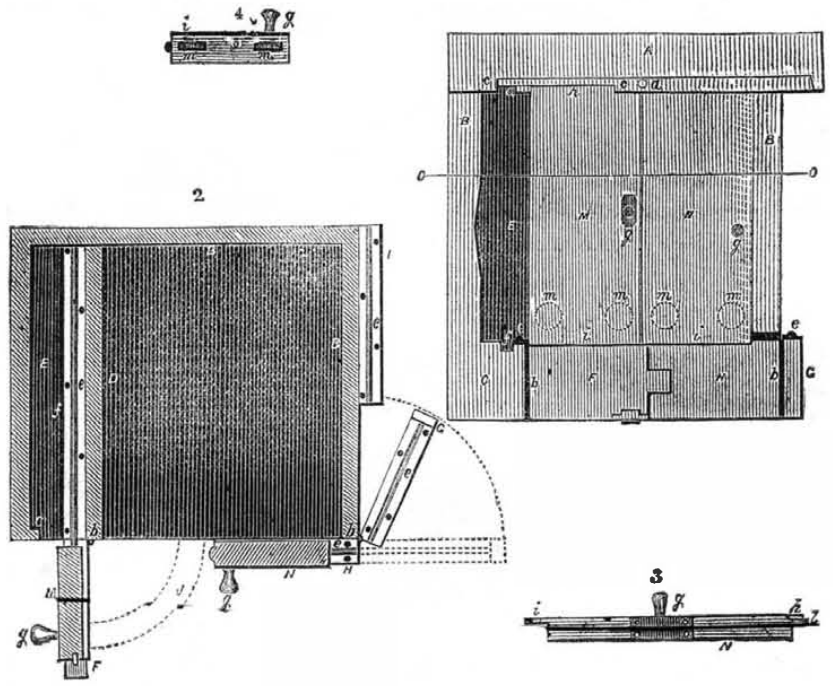
The material of which the base and the body of the walls are constructed is blue rock or gneiss, from the banks of the Potomac.—The dimensions of the obelisk, according to the plan, are, fifty-five feet square at the base, and thirty-three at the top, with an opening for the iron staircase of twenty-five feet. The height of the obelisk is to be five hundred feet; diameter of the pantheon two hundred and fifty feet, and the height one hundred. The walls are fifteen feet in thickness at the base, and will gradually diminish to four at the apex.

The blocks of stone are raised by means of a steam engine, there being a four-boom derric rigged on top of the monument. They are elevated at the rate of thirty feet a minute, and some of them weigh about three tons each.

The foundation is a solid mass of rock eighty-one feet square and twenty-five feet in height.

Twenty eight of the blocks contributed by the States and associations have already been inserted in the monument; those of the first are placed opposite each landing, and of the latter below them. They commence with Maine. Thirty or forty blocks are deposited in an outhouse, and will be assigned positions as the building progresses.

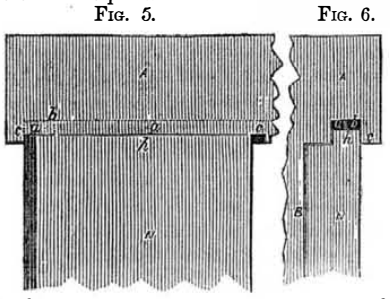
IMPROVED ATTACHMENTS FOR OPENING, CLOSING AND REMOVING DOORS AND SHUTTERS.---Fig. 1.



The accompanying engravings represent an improvement for the purpose set forth in the foregoing caption, invented by Mr. Wm. Post of Flushing, Queen's Co., L. I., N. Y., and which was patented on the 18th of last February.

Fig. 1 is a front elevation of a building with doors or shutters, and the improved attachments connected; fig. 2 is a sectional plan through the line, O O, fig. 1. Figure 3 and 4 are detached views of one of the shutters. Figures 5 and 6 are broken views in detail, on an enlarged scale, of the upper part of a shutter as seated in the soffit of the lintel, figure 5 being a transverse and figure 6 a side elevation, showing the position of the shutter in the soffit on the side of the building. The same letters refer to like parts.

Fig. 5. Fig. 6.



The nature of this invention refers to the use of the sliding doors or shutters for closing up the fronts or open portions of stores, &c., and consists in the use of jibs or swinging attachments, upon the upper edge of which the doors or shutters are run, and which may be swung in suitable directions so as to allow of the doors or shutters being run off and removed into a recess, in a line forming a right or other angle with the position they occupy when used in enclosing the windows, &c.—The jibs or swinging attachments also serve to carry out the shutters when required to close.

A is the lintel of the window or door; B B B are the back and two outside walls; C C is the sill; D is an internal wall; E is a recess for storing the shutters; *a a a* are grooves in the soffit of the lintel extending along the front and on both sides of the building, and used for the upper edges of the shutters to slide in; the lintel has notches, C C, fig. 1, cutting as it were the outsides of the groove, *a a*, in the front and one of the side soffits for a length of the width or rather more than the width of one of the shutters, and of a height to admit of a shutter swinging out. F G are swinging jibs hung and working on hinges, *b b*, attached to the sill, C C, at their one end, and their swinging extremity, forming a mortise and tenon joint with pieces, H I, nailed or firmly secured to the sill, C C; *d*, fig. 1, is a bearing roller for carrying the outer extremity of the jib, F, and J, a curved plate or surface for the roller, *d*, to run upon; *e e e e e* are rails secured on the upper edges of the jibs, F G, pieces, H I, and one side of the sill. *f* is a groove in and of the same length as the sill; M N, are sliding doors or shutters provided with handles or latches, *g g*; the lower part of the shutters, M N, marked, *i i*, are made to lap over the jibs, F G, pieces, H I, and to run in the groove, *f*, the upper part of the shutters, M N, marked, *h*, travelling in the grooves, *a a a*; on the top edge of each of the shutters is a projecting pin or stop, *l*, which also travels in the grooves, *a a a*; *m m m m*, are sheaves or bearing wheels for carrying or supporting the shutters and running on the rails, *e e e e e*.

When the shutters, M N, closing the front of the building, as shown in fig. 1, are required to be removed, the shutter, M, is drawn back upon the rail secured to the jib, F, until the corners of its upper part, marked *h*, arrive opposite the ends of the notch, C C, which is of sufficient height to admit of the top of the shutter clearing, when swung out, the upper line of the notch, C C, the pin or stop, *l*, serving to prevent the shutter from falling by its bearing or pressing against the outer side of the front groove, *a*. The grooves, *a a a*, being of sufficient depth or height to admit of the stop, *l*, travelling within them. When the shutter, M, is drawn back to the position just described, the jib, F, is swung outwards, or opened, and with it the shutter, M, until arriving at a right angle with the front, and in a line with the rail, *e*, on the sill at the side, when the shutter, M, may be run into the recess, E; the operation in removing the shutter, N, is somewhat similar, the jib, G, being opened until arriving in a line, and forming a continuation with the piece, H, when the shutter, N, may be run off upon the rail secured to the jib, G, which may then be closed, its tenon entering the mortise in the piece, I, (the upper part of the shutter, N, marked, *h*, passing through the notch, C C,) when the shutter, N, may be run along the rail secured to the piece, I.

When required to draw out the shutters for closing, the same action is used as for opening and removing, the swinging jibs, F G, operating in the manner described, and serving to break the angle, as it were, formed by the shutter recess and window or front; or by their swinging action, admitting of the shutters being drawn off or on, and carried round a corner or angle, as shown and described.

Any number of doors and shutters may be used, and there can be no doubt but that for heavy doors and windows this is the best invention yet brought before the public; it only wants to be examined calmly and intelligently to meet personal approbation. They can be constructed at less expense and much easier managed than any other heavy shutters for stores with which we are acquainted.

More information may be obtained by letter addressed to Mr. Post.

Post-Office Stamps---Unfair Dealing.

We learn by the Bangor (Maine) Mercury, that Mr. Joseph W. Strange, a good mechanician, of that place, has been unjustly used in respect to the contract by our government, in getting up "post office stamps." It is stated that the stamps are made in this city, (N. Y.) "of maleable iron, case hardened. The letters and figures are very defective. The fortunate contractor, we learn, receives $10,60 for each set, including the dates, months, "free stamp" and paid stamp. A skilful mechanic of this city put in proposals to make the stamps required, of steel, finely tempered, according to specimen sent, for $10,50 per set, ten cents less than they are furnished by the person who has succeeded in getting the contract. We venture to say that the specimen sent by Mr. Strange of this city, (to whom we refer above) is decidedly superior to any stamp ever used in any post office in the country. Its letters and figures are clear and distinct, of material tempered with skill and care, are durable, and will preserve their edges and points for years. The impressions from it are clear and legible. And Mr. Strange would have honorably furnished, had the contract been awarded to him, stamps in all respects equal to the specimen. He was the lowest bidder and sent the best article. Why did he not receive the contract? Who can tell us?

[Our friends at Bangor are perhaps not aware that the contract system, by our government—like other governments; is none of the purest. Political partizanship and patriotism are totally distinct articles, the former is a mere article of merchandise, the latter cannot be bought; this accounts for the abundance of the former in the market, and also for the premiums sometimes obtained by trickery in selling it.

Cure for Hydrophobia.

Mr. James A. Hubbard, of Boone county, Ill., in a letter to the St. Louis Republican, says:

"Eighteen years ago, my brother and myself, were bitten by a mad dog. A sheep was also bitten at the same time. Among the many cures offered for the little boys (we were then ten or twelve years of age,) a friend suggested the following, which he said would cure the bite of a rattlesnake:

Take the root of common upland ash, generally called black ash; peel off the bark, and boil it to a strong decoction; of this drink freely. Whilst my father was preparing the above, the sheep spoken of began to be afflicted with hydrophobia. When it had become so fatigued from its distracted state as to be no longer able to stand, my father drenched it with a pint of the ash root ooze, hoping to ascertain whether he could depend upon it as a cure for his sons. Four hours after the drench had been given, to the astonishment of all, the animal got up and went quietly with the flock to grazing. My brother and myself continued to take the medicine for eight or ten days—one gill three times a day. No effects of the dreadful poison were ever discovered on either of us. It has been used very successfully in snake bites to my knowledge.

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NEW INVENTIONS.

Improvement in Attaching Auger Handles.

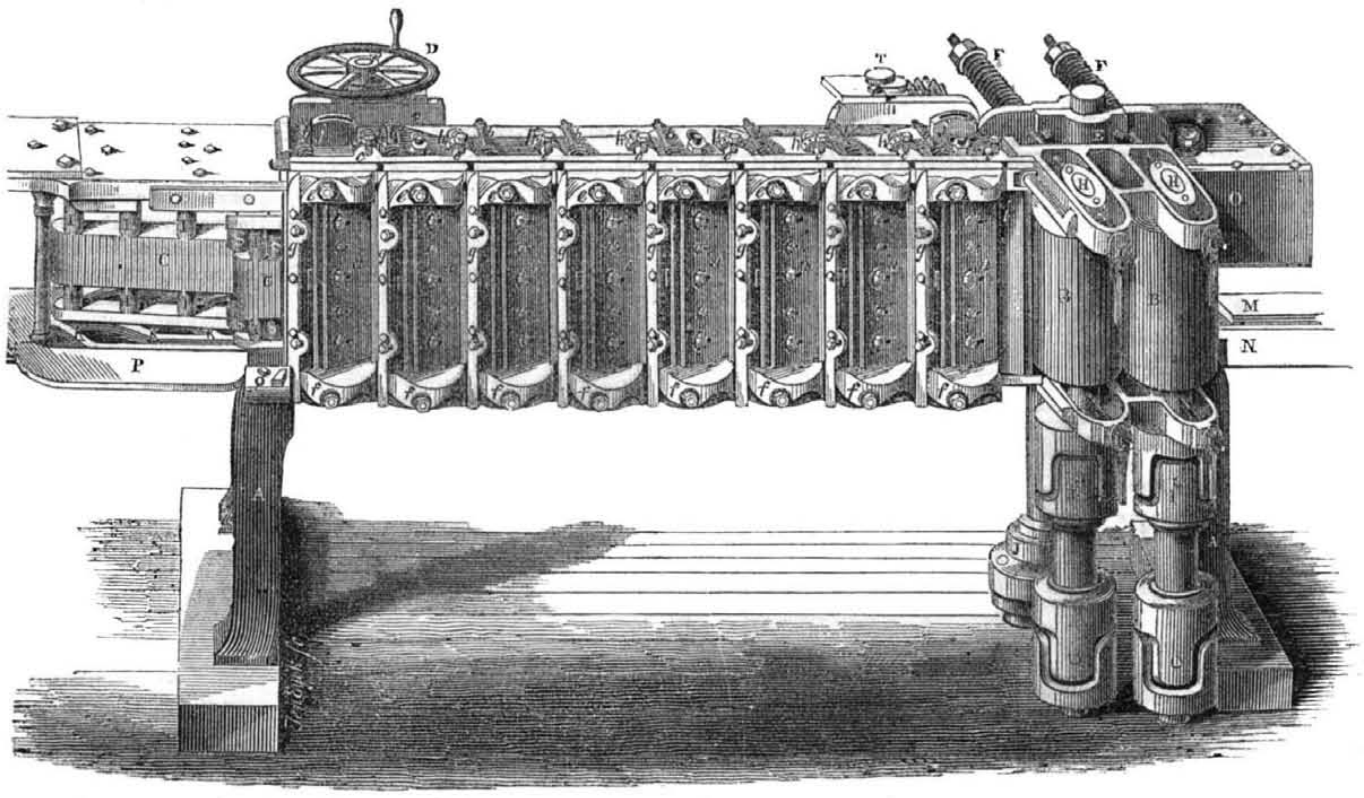
Mr. Merritt S. Brooks, of Chester, Conn., has taken measures to secure a patent for an improved method of attaching augers and other tools. A socket is secured to the underside of the handle under a mortice, the said socket having bevelled edges fitting into notches in the shank of the auger. The upper surface of the socket is bevelled, and the shank of the auger or other tool is moved in it (the socket) by means of a ferrule, till the bevelled edges spoken of bind firmly in the notches of the shank; thus in a most simple manner securing the shank and handle together. This is a very excellent improvement.

Improvement in Annealing Wire.

Messrs. I. Washburn, and P. L. Moon, of Worcester, Mass., have taken measures to secure a patent for a very excellent improvement in annealing wire, and other articles. In the annealing oven, a coil of wire or other article is suspended on the end of a revolving spit formed of bars and hung on a rail on which it travels and swings, so that the coil can be placed on the spit outside of the oven, the doors of which are made with such an aperture as will enable them to fit close around the spit when inserted.

There has been a machine for polishing boots on exhibition at the Lowel Fair. This we consider a most useful, though an humble invention.

BEARDSLEE'S ELASTIC CUTTER FOR PLANING BOARDS AND PLANK.



DESCRIPTION OF THE ENGRAVING.—A A are the legs which support the machine; B B are the feeding rollers; C C are sectional plates that form the movable bed; D is the hand wheel which operates the raising screws; E is a box cap of the main driving shaft; F F are springs attached to the feed rollers; G G are handle nuts to adjust the rollers; H H are the roller shafts; I I are universal joints which connect the rollers with the lower gear; J is the coupling which unites the main shaft with the lower gearing; K K K are concentric grooves which guide the plates at each end of the machine; L L L L L L are racks in the plates; M N is the feeding table; O is an iron shield to the plates at the feeding end; P is a guide at the tail end of the machine; Q is a lug of the main frame to attach it to the legs; S S S S are cogs that work in the racks; *a a a a a a a a* are the knives and caps; *b b b b b b b* are springs which hold the heel of the stocks attached to the hinged bars; *c c c c c c c* are set nuts to the socket bolts, which adjust each knife and stock separately; *e e e e e e e e* are nuts to the bolts which fasten the stock to the hinged bars; *f f f f f f f* are knife stocks; *g g g g g g g g* are steel bars forming throats bolted to the stocks; *h h h h h h h* are nuts to adjust the socket bolts; *i* is a fixed bar to the head knife; *j j* are raising screw nuts attached to the side plates.

Letters Patent were granted by the United States, on the 20th of May last, to George W. Beardslee, of the city of Albany, N. Y., for the machine of which the accompanying engraving is an illustration: it presents a view of the machine in perspective, as it stands upon the mill floor, and shows the outline of the structure, though not as fully as if exhibited in sectional drawings. It planes boards and plank with a series of line cutters, which are so attached and adjusted to side plates, that the heels of the stocks hold together the grains of the board and prevent the material from being forced asunder by the feeding power; the heel of the stock being elastic while the edge of the knife retains its relative graduation.

The stocks are made elastic by being bolted at the ends to hinged bars; these bars are attached by pins to bolts, which are worked in sockets formed in the side plates, to which all the stocks are adjusted. The vibrating centre of the stock hinge is in line with the cutting edge of the knife. By this arrangement the heel of each stock is allowed to rise and fall without changing the relative graduation of the series of line cutters. This device, as will readily be seen, is a very great improvement, and is all important in the practical operation of line cutters.

In the machine patented by Sir Samuel Bentham in 1791, as will appear by reference to the 5th volume of the "Repertory of Arts," a series of line cutters is described as linked together, of sufficient number to plane a board to a uniform thickness in one operation, and graduated to the different thickness of shavings, "the foremost set rank for the sake of riddance, and the last set fine for the sake of smoothness."

He also describes the stocks as elastic and as being held very firm upon the board by weights, or otherwise, and kept in position by pins working in slits in the side plates. A serious difficulty in the Bentham machine arose from the fact that the edge of the knife yielded with the elastic stock; but the graduation of the shavings in the Beardslee machine is uniform, the edge of the knife retaining, with reference to the bed, a relatively fixed position, like the centre of a revolving shaft. Neither in the Bentham machine, nor in any other hitherto constructed, has the principle of the self-adjusting throat been developed until it was introduced in the Beardslee Planing Machine. The novelty and importance of the improvement cannot fail to strike the mind of every scientific mechanic. By means of this arrangement the sole of the stock always rests upon the board in the precise plane of the preceding cut, and from that plane there can be no deviation, whether the board be narrow or wide, or in whatever part of the machine it may run. The elasticity of the stock is the same, whether it is controlled by springs at both ends or by a spring at one end only. By this arrangement, also, a diffused and uniform pressure is produced along the whole line of elastic stocks. The soles of the stocks are broad, and allow the lumber to pass beneath them without depressing the surface.

The peculiar arrangement of the knives and stocks effectually obviate all the difficulties heretofore encountered in the use of line planers. As there is no intervening space between the sole of the stock and the board, defective and cross-grained boards cannot separate while passing through the machine; loose and detached portions of the board are held in position or pass out during the process of planing by the yielding of the elastic stocks. The gradation of the shaving and the thickness of the lumber are not changed by the removal of the cutters to be sharpened, as the most ordinary mechanic can readily replace the knives in the precise position which they occupied before their removal; this insures uniform thickness of the material planed.

The first knife of the series is made elastic both at the heel and the edge, with a fixed throat like the hand plane; it is held in its relative position, and prevented from moving forward or backward, by the hinge pin working in a slot, This cutter, in its operation, becomes a jacker, taking the first shaving from every board, and a shaving of equal thickness, whether the board be thick or thin; thus the whole gritty surface of the board is removed with the first shaving, which, from the vertical position of the machine, passes out before the board is brought in contact with the other knives, and they are left to operate only upon a surface previously planed.

The belts, gearing, and pullies which operate the feeding apparatus, are all placed beneath the floor of the mill, and from their position are less liable to be deranged. The gears are of great strength, capable of passing any material through the machine. The principal driving wheel weighs 676 lbs; and the rollers are operated by three gear wheels, which are of great strength and equal size.

The rollers and the sectional plates form a clamping apparatus which conveys the boards or plank through the machine while subjected to the action of the knives. This apparatus is peculiar in its structure and movement. There is an endless sectional platform, which is carried forward by pinions working in racks. Thus the successive plates are propelled beneath the series of cutters, rising and descending at each end in concentric grooves, and returning along the back of the machine. The sectional plates pass over a true lubricated bed, and being made of iron and planed to a uniform thickness, they form a perfect plane while passing beneath the cutters. This device is of great practical importance in connection with the use of line planers, as any variation of the bed upon which the lumber rests, not only produces an unequal thickness, but also effectually destroys the action of the cap. The cap, when placed in the relative position to the edge of the knife which is required for a given shaving, serves the two-fold purpose of holding the board to the bed, and preventing the grains of the wood from separating in advance of the cutting edge of the knife. If the bed be unequal, the shaving will be unequal also. The cap must be removed from the cutting edge a sufficient distance to allow the greatest thickness of the shaving to be removed, and of necessity ceases to operate at all as the thickness of the shaving diminishes. But with the level bed of the Beardslee Machine, the thickness of the shaving is uniform, and the action of the cap is steady, equal, and unvarying. The machine is constructed entirely of metal, and in the most substantial and durable manner; it is less liable to derangement and injury than any other planing machine in use; it requires but a small proportion of the power which is requisite in the Woodworth machine to do an equal amount of work. The cutters perform more than ten times the service without requiring to be sharpened. The machine planes lumber of every kind, and planes it equally well, whether it be one-fourth of an inch or three inches in thickness; it produces a beauty of surface and a uniformity of thickness never before equalled by any machine in this country. The quantity which it will plane in a given time is almost incredible, as its only limit is the quantity which can be fed into the machine.

The newly invented Matcher, for tongueing and grooving boards and plank, which is used in connection with this machine, is a device not easily described without the aid of drawings, but exceedingly simple and beautiful in its operation. It has never before been equalled by any tongueing and grooving machine, either as to the quantity or quality of its work. It produces a tongue and groove far superior to any that can be made with the hand match planes by the most experienced workman. It is so arranged that it is either operated separately or in connection with the surfacing machine, and lumber is run through both the surfacing and matching machines without any more preparation than is required for the Woodworth Machines. In one operation the lumber can be planed on both sides in the Beardslee Machine, and at the same time rabited and beaded or jointed. The planing machine, as well as the matcher, are now in full operation at the machine shop of F. & T. Townsend, on Elk street, in the city of Albany, N. Y., where Mr. Beardslee is extensively engaged in the manufacture of his machines.

We hope to be able to present an engraving of the Matcher in a few weeks.

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Scientific American

NEW-YORK, OCTOBER 4, 1851.

A New Science.

In this age of new ideas and new developements, no subject is of equal importance to that of sanatory reform—the health of the people. What signifies prosperity in business to the merchant who languishes in sickness; or what pleasure can be derived from all the luxuries and abundance that can be obtained in this world, if disease sits brooding at the fountain of public health? The sanatory condition of the people is a new science, because it takes cognizance of the durability of general life, and examines into those causes which shorten or prolong it. When thousands suffer from the fever, it examines into the causes of the plague (for plague it is), and seeks out the best means to remove them. If a disease like the cholera suddenly strikes down multitudes in our midst, it investigates the causes and endeavors to provide a remedy. It is the same with all other diseases—nothing escapes its searching scrutiny, for it includes not only medical, but religious, social, and political considerations; the field is of boundless range—it encircles the whole human race, the earth, the air, the waters, the sky. Its first process is the collection of knowledge, next, the arrangement of facts, and then the best means of applying those facts to effect the desired object, namely, the prevention and alleviation of disease. Thus the decay of vegetable matter, filth, and bad ventilation are known to generate, fevers. Statistics of health are very useful, for by them we can form a good idea of the sanatory condition of cities, villages, &c. Thus, in cities in the same latitude, we find the average duration of life to be twenty-five in one; in another thirty, and in another thirty-five years—hence we conclude that there must be some powerful local evil causes in operation which thus shorten life in the one place by ten years less than it is in the other. As it is with different cities and localities, so it is with individuals; here we find two men working at the same bench, and each furnished with equal physical constitutions, yet the one is always in the enjoyment of exuberant health, while the other is frequently confined to his bed, unable to follow his occupation. There can be no doubt, in our opinion, but more than one half of our diseases are manufactured, and while this is the case, we hold ourselves responsible, and every man is responsible according to his influence, for those evils. It is, therefore, our duty to speak out and labor for the removal of them. A few years ago the ship fever carried off hundreds in this city; then came the cholera with its frightful bill of mortality; and at present there is not a single week passes away but what it will be found that some peculiar disease has carried off more victims in the city than any other: yea, perhaps a greater number than all the rest put together. When such a fact presents itself we should mark it well, for there must be some important cause at the bottom of it. At present we do not mean to speak of the causes—the specific evils, nor the remedies; we merely wish to direct the attention of every person to the importance of this new science, for every person who has eyes to see, ears to hear, and common sense to appreciate, can, by observation and reflection, know a great deal about it, and, what is more to the purpose, be a counsellor in the good work, for this science links both the moral and the physical sciences together.

Patent Office Report for 1850.---No. 3.

Examiner Fitzgerald's Report.—Five hundred and twenty-two applications were referred to Mr. Fitzgerald last year, for which the small number of 227 patents were granted—a great many more rejections than were made by Examiner Page: the number of rejections stated were 406, but this includes all rejections; the reason of this is, that a very great number have been dissatisfied with Mr. Fitzgerald's first decision, and have therefore appealed for a second: Mr. Fitzgerald is peculiarly unfortunate in this respect, and his report is made in a very complaining spirit. Speaking of the present system of examinations, he says—

"Prior to the introduction of the present system of examinations, applications for patents were never numerous. Although patents were granted to all who applied for them, yet, owing to a want of revision by men of artistic knowledge and experience, they were found to be so imperfect, and so large a proportion of them were granted for things that were old, that they afforded very little security. No one feared to infringe a patent, as he was almost sure to be able to defeat it, for insufficiency of description, a defective laim, or for covering what could be shown to be old. The maxim was, that any patentee could be defeated who dared to commence a suit, and the most valuable invention seldom afforded any remuneration to the inventor. Patents were not only defective, but their reputation was bad, and the government did little else for the inventor than keep its promise to the ear."

He says the old system was abandoned in 1836, and the new superior system, under the supervision of men having artistic knowledge, went into effect, and "it was found that the infringement of a patent, which had been perpetrated without fear and with impunity, had become a dangerous experiment." The new system of examinations is good, we find no fault with it, if conducted in the right spirit, by just Examiners, but it happens strangely that more patent litigation has resulted in connection with patents which he has passed, than those of any other Examiner. More trouble in every way has resulted from his examinations, and to prove this we have but to refer to the numberless suits about Planing Machines. He should not have taken so much credit to himself, but, like Atlas, he bears the whole Patent Office on his shoulders. His Report takes cognisance of all the past, and present operations of the Patent Office. The Commissioner must have had a very insignificant view of his own place and office, to have allowed some parts of this Report to appear before the public, for he (the Commissioner,) appears to be a cypher—Examiner [illegible] the head of the Department.

Twenty-four patents were granted for mills, thirteen of which were for grinding and crushing,—one of which was for an improved way of steaming grain before grinding, as it passes from the hopper—a bad plan, as we have heard many millers say. Seven or eight patents were granted for cast-iron car wheels; six patents were granted for pumps, one of which was illustrated and described on page 12 of our fourth volume; sixty patents were granted for improvements in working on timber, many of which, Mr. Fitzgerald suggests, have been got up from bad motives. Perhaps they have, but it appears to us, that he looks upon almost every applicant for a patent as a rogue or a fool—a bad disposition truly. Fourteen patents were granted for machinery to plane boards and shingles, every one of which machines, we believe, has been sued on the improved principle of Mr. Fitzgerald's examination for infringement of another old patent. This Report takes the ground, that an improved system of granting patents commenced in 1836, by which they at once became more valuable than they were before, but knowing that there are just as many law suits as ever, he gets over the difficulty, by saying the "patents are granted for whatever is novel," and insinuates that these novel granted patents are obtained for bad purposes: it is really shameful; but if patents are more valuable from the superior examination of such men as Mr. Fitzgerald, how did it happen that two patents were as good as declared void on the 11th of last month, before Judges Grier and Kane, in Philadelphia? As we said before, we do not find fault with an examination to make a patent valuable, but it is our opinion that as much injustice as justice—as much evil as good, is committed by the conduct of the Patent Office: it has the power of doing much good and much evil.

A disposition has been manifested on the part of the Patent Office, especially under its present management, to destroy the business of regular and respectable Patent Agents. No one, we presume, is so green as not to understand the nineteenth section of the Information Circular, issued from the Patent Office, or fail to discover the real and concealed purpose for which it is intended, viz., to get possession of the inventor's funds, and reject his claims without giving him anything more than simply references, to which he has no means of access; while, on the other hand, agents, qualified for the proper discharge of their profession, can readily refer to the cases named by the Commissioner, in his letter of rejection, and expose the falsity of his position where errors are committed: this is annoying to the Examiner, and hence the clause in the "Information" against agents. Any one, on a moment's reflection, can see the shallowness of the pretext; and we believe that those who undertake their own cases will, in ninety-nine cases in a hundred, express the regret that they had not employed an agent to execute their drawings and specifications. It is unreasonable to suppose that the Examiners in the Patent Office would choose a set of imperfect drawings, a cloudy and indefinite specification, simply because they were prepared by the inventor, or what is generally worse by a lawyer who has no pretentions to science and refuses all responsibility. Depend upon it, inventors, there is little real candor in such professions, and to prove this we have only to state that the moment an Examiner retires from the office, he sets himself up as conspicuous as possible, in the Patent Agency business. We see from this that there is apparently a selfish current running through the whole of this Report, and we are sorry to see it. From our experience, and from our acquaintance with inventors, we believe that not one in a hundred applies for a patent who is not honestly sincere about the originality of his invention and his claims to the improvement. We have calculated that about three apply to us to act as agents in procuring patents, for one that we take in hand to do the business for. If we believe no patent can be granted, we say so at once; but it is sometimes very difficult to know what to say or what to do. The action of the Patent Office is so eccentric: sometimes like that of an inebriate and sometimes like that of a sober man, that we find it very difficult to give that clear advice which we should like to give, was there a different spirit existing from that exhibited in this Report, and uniformly displayed in the Patent Office.

Inventions.

The following ideas are selected from the Buffalo Pathfinder. The first paragraph is so true that we wish more of our people understood it.

"There is nothing which contributes so much to the permanent prosperity of a nation as its inventive talent. It is what has contributed more to the wealth, commercial importance, and national prosperity of England than any other cause, and is at this time doing as much and perhaps more for our own republic. We are behind no other people in mechanical ingenuity and genius, and this cause is surely, though perhaps silently and imperceptibly, working out for us the first position among the nations of the earth.

Perhaps nothing does more to foster our mechanical interests than the circulation of good mechanical papers; and we know of no publication which is doing more in this respect than the Scientific American, published by Munn & Co.; it is a valuable repertory of inventions and a record of the progress of scientific discovery, and having a large amount of interesting and valuable reading matter.

The weekly report of patents is alone worth the price of the paper."

To our cotemporaries generally, we return our sincere thanks for the flattering notices extended to the Scientific American. If space would permit, we should present the names of such of our friends as have spoken indulgently of our humble abilities.

Gwynne's Centrifugal Pump.

A correspondent of the New York Daily Times informs his countrymen that the test trial between the pumps of Appold and Gwynne, which took place in England not long since, resulted much in favor of the former, notwithstanding the eulogies heaped upon it by the eccentric Editor of the Tribune, and the reported sale of the Scotch patent for $50,000. The inventor is said to be a member of the Static Pressure Engine Co., and, probably, for want of proper information about centrifugal force, has suffered a defeat he might otherwise have avoided. See Scientific American, Vol. 6, page 341, for a correct expose of the centrifugal force theory: as a consolation to our countrymen, we would state that there are plenty of pumps here which never could have been beaten, four to one; no, not one to one. In the estimation of scientific men we shall not suffer in reputation by the trial.

Webster's Unabridged Quarto Dictionary.

It gives us pleasure to hear of the increasing popularity of the Great Dictionary of the English Language; and as its price has been reduced to six dollars by the enterprising publishers, Messrs. G. & C. Merriam, Springfield, Mass., it is our opinion that the time is at hand when it will be used (for it is the recognized one) in all parts of the world as the exclusive standard of the English language; we say this because we know that no person that wishes or requires a new dictionary, would ever think of purchasing any other. The last Legislative Assembly of this State (New York) exhibited its wisdom and high sense of the value of this Dictionary, by passing a law to supply all the Common Schools with it. The State of Massachusetts has also furnished about three thousand copies of it to her Common Schools. The most eminent men in our country have expressed their decided opinion respecting its superiority. Daniel Webster said that he "never felt armed and equipped without Dr. Webster at command." The London Times has said that it was the best Dictionary of our language; Dick, the Christian Philosopher, says, "it is the most complete Dictionary of the English language ever published." Judge Spencer, of this State (and we have not a better umpire) says, "it is relied on in our Courts of Justice, Legislative bodies, and in public discussions, as conclusive." It is indeed the standard work of our language, and as such it is relied on in the Court, the Camp, the College, the Bench, the Printing Office, and the School Room.

We have nothing to add to what others have so well said respecting the general merits of this work, but we have something to add respecting its peculiar scientific qualities. We have a number of dictionaries relating to Science and Art, and we have glossaries of scientific terms, and those relating to the operations and particular parts of machinery, &c., and we must pay this compliment to Webster—"it contains scientific terms not to be found in any other work," and we have often been surprised to find that it contained full and clear definitions of many technical phrases, which we thought had never been heard outside of the workshop. It is a real Encyclopedia of Science, for it not only gives the definitions of scientific terms, but describes the nature of many chemical actions and the operations of many machines. In its unabridged present form, it is complete, and no man pretending to scientific knowledge can be without it: we mean the Unabridged Dictionary, the present new edition, which contains all the results of Dr. Webster's forty-seven years' labor and revising, and the labors, for a number of years, of Prof. Goodrich and several other gentlemen distinguished in science and literature. In Chemistry, Architecture, Geology, Engineering, Mechanics, &c., &c., it is full and accurate, and is not only essential to the student in science, but the most erudite philosopher. We are proud of this work as an American production; it is certainly gratifying to know and feel that England looks to America as having now produced the standard work of the English language.

Our New Type.

We have been congratulated in a number of instances, upon the beauty of the type, and the general typographical appearance of our new volume. The type was manufactured by Mr. H. H. Green, whose foundry and establishment constitutes our next door neighbors. The type manufactured by Mr. Green are not surpassed by any establishment in our country.

Phillips' Fire Annihilator.

What has become of this "Annihilator?" It does not seem to have done any good as yet in this city, for the fires are as numerous as ever and just as destructive. Bring on your "Annihilators,' gentlemen, at some of our fires, and let us see what they can do. It will be found that wherever the Scientific American is read the people do not go such things blindfolded.

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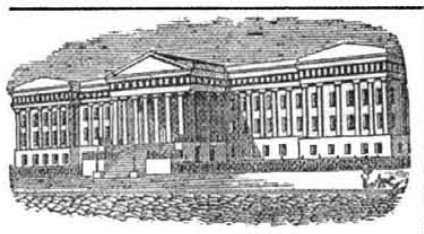

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office
FOR THE WEEK ENDING SEPTEMBER 23, 1851.

To G. B. Clarke, of Leonardsville, N. Y., for improvement in Churns.

First, I claim the employment of a revolving vessel containing the cream or milk, with or without cleats, constructed either plain or with pins, or having any other suitable internal projections, and operating in combination with a toothed or plain stationary cross-bar, removable or permanently secured to the fixed axles, and situated in the space forming the upper half of the vessel, at any desired distance from the centre thereof.

Second, I also claim the employment of a tempering cylinder and tubes, in combination with the revolving vessel and cross-bar, for cooling or warming, and agitating the milk, by its precipitation thereon, as caused by the circular motion conveyed to the milk, and interruption or arresting effect produced, substantially as described.

To O. W. Grimes, of Puducah, Ky., for improvements in machines for Scutching and Hackling Hemp and Flax.

I claim the method described, or any other means essentially the same, of throwing the teeth in and out of the cylinder or drum at pleasure, whilst in motion, so as to present a greater or less length of teeth to the hemp, or of drawing them entirely within the cylinder, in case the hemp should become entangled and likely to break up the machine.

Second, I claim, in combination with the bar holding the teeth, the spiral spring for allowing said bar to yield to knots or other obstructions, and for drawing back into proper position the said bar, after it is released from said obstruction.

Third, I claim, in combination with the bar and teeth, arranged as described, the adjustable guides for setting the teeth at such angle as will give them more or less hold upon the hemp, as described.

To L. D. Grosvenor, of South Groton, Mass., for improvement in machines for Stripping Seed from Broom Corn.

I claim the endless bearded belt, constructed of any proper material, and having lugs or spikes, as described, in combination with the comb rollers set diagonally upon the frame, in the manner and for the purposes substantially as set forth.

To Wm. Merrell, of Randolph, O., for improvement in Lath Machines.

I do not claim mounting a rotary cutter on the same spindle of the rotary saw, as described; nor do I claim the returning table, consisting of a series of rollers arranged and operated in the manner described; but what I claim is the director and carrying belt, in combination with the apparatus for registering, substantially such as described, for delivering bundles ready counted.

I also claim the rounded surface of the receiving table, in conjunction with the bent form of the strip, which effects, in the simplest manner, the delivery on the returning rollers of the unsawed slab, to the attendant, for another cut.

To Patrick O'Neil, of Brooklyn, N. Y., for improvement in Easy Chairs for Invalids, etc.

I claim the manner of combining the jointed chair with the jointed ottomans, whereby the whole is made to subserve the several purposes described.

I also claim furnishing the back of the chair with an additional joint, whereby the back of the chair is rendered susceptible of such adjustment as to form a support to the spine of the occupant of the chair, as described.

I also claim the employment of the triple jointed hinges, in combination with the spiral springs, for securing the flexible bolster by which it is steadied and retained in its proper position, when expanded and contracted, as set forth.

To A. J. Sexton, of Brooklyn, N. Y., and Wm. Ennis, of New York, N. Y., for improvement in Ventilating Ships.

We do not claim to have invented either the caboose, water back, ventiducts, or valves, although we do not know of the several parts referred to having heen used for the purpose described; but what we claim as our joint invention is the combination and application of the caboose, water back, ventiducts, and valves, in connection with our water surface and the cowl and vane, for the introduction of pure air, and the expelling of impure air, as described and for the purpose mentioned.

To T. J. Sloan, of New York. N. Y., for improvement in machinery for threading Wood Screws and Feed Apparatus therefor.

I claim the employment of two cams in combination, substantially as described, for the purpose of operating the fingers, which supply and present the blanks to the griping jaws, as described.

I also claim the employment of one cutter to form the thread on the conical point, when combined and operating simultaneously with a second cutter, for forming the thread on the main part of the shank, substantially as described and for the end specified, provided the motion of one of the cutters is extended into the track of the other, to insure the making of the thread on the conical point, a continuation of the thread on the main part of the shank.

To Wm. Mt. Storm, of New York, N. Y., for Engine, in which compressed air or other gas, heated and expanded by admixture therewith of a heated fluid, is used as a Motive Agent.

I claim actuating an engine, such as is now usually driven by steam, or of any convenient form, by means of a measured or detailed quantity of air, previously compressed, and having had its tension due to such compression, highly increased and augmented by the jetting or flashing into or commixture with it, of a measured or detailed quantity of a medium, or, in other words of a heated liquid, as water or a vapor, (simple or super-heated), as steam; said jetting of the steam into the air (or vice versa, the air into the steam, which I claim as equivalent,) and their commixture being effected in a vessel or vessels, disconnected previous to and during that process, or at least prior to its consummation, from the reservoir or main source of compressed air, and from that of the steam, &c., and each separate and distinct charge or detailed quantity of compressed air, heated by its corresponding charge or detailed quantity of steam being allowed to act upon the piston or its equivalent, prior to the admission or introduction of another charge of air and steam into the vessel or vessels in which their commixture is effected, the whole operation being carried on by means of mechanism, in substance such as represented, or any more fitting mechanism that shall effect the same in the manner here claimed.

To Isaac Banister, of Newark, N. J., for improvement in Shoe Latchets.

I claim confining a shoe to the foot by means of a flexible latch secured to one portion of the said shoe, acting in conjunction with a socket or eyelet, and a catch or hook secured to other parts of the shoe, and operating substantially in the manner set forth.

To Asa Willard, of Boston, Mass., for improvement in the Churn and Butter Worker.

I claim the combination of one or more fluted rollers with one or more floats, to operate so as not only to aid in the process of separating the butter from the cream, but afterwards, and when the motion of the dasher is reversed, to throw into ridges the butter spread on the bottom of the floats.

And I claim the improvement of giving a longitudinal hollow, or curve, to the external surface of each float, for the purpose of gathering the spread butter towards its middle, and preventing the butter from adhering to the ends or the reservoir, as specified.

To L. H. Browne, of Boston, Mass., for improvement in Pianofortes.

I claim, first, arranging the sounding board in a springing form, and supporting its back on a straining lever, made to bear with more or less force against it, in the manner and for the purpose specified.

Second, I claim the combination of the short subsiding iron frame, having a rectangular socket on its front rail, with the long main iron frame, having a wooden block on the under side of its front rail, which fits and is glued into the aforesaid socket, as set forth.

Third, I claim casting the bridge of the long iron frame, with curved brackets, so as to have it raised above the level of the bottom of the front rail of said frame, and permit the strings to be strained, or strung under the same, as explained.

Fourth, I claim easing the escapement of the fly of the jack from under the centre block of the hammer, by means of a spring combined with said block and the stem of the hammer, as stated.

Fifth, I claim arranging the back catch on a lever having a fulcrum in the jack, and arranged so as to cause the catch to follow the hammer in a stroke of the same, and cause it to repeat the stroke or note, if desired, when the fly of the jack fails to operate, so as to effect said second stroke.

Sixth, I claim using a piece of gutta percha on the top of the hammer head, in lieu of some of the layers of leather, in the manner and for the purpose specified.

To Benj Chambers, of Washington, D C., for improvement in Letter Stamps.

I claim so making and operating the detruding rods, or followers, of a letter stamp, so as to act wholly within the body of the stamp block, whereby I avoid cutting away tho handle, and the weakening which would be caused thereby.

I also claim making the detruding rod, wing, and thumb slide, in a single piece, whereby I greatly economize the labor of making this part of the stamp, as set forth.

To J. H. Manny, of Waddam's Grove, Ill., for improvement in attaching cutter bars to Harvesters.

I claim hanging the cutter bar of a reaping machine to the side of a triangular frame, in such manner that neither extremity of the cutser shall be liable to sag below the other extremity, as set forth.

To Jacob Worms, of Paris, France, (assignor to Jacob Phalen, of New York, N. Y. Patented in France, (in part), May 19, 1849, and (in part) Sept. 27, 1849, for improvement in Printing Presses.

I will here observe that engraved or sunken cylinders have been already used for the printing of woven fabrics; but these are very expensive to manufacture compared with the cylinders prepared as I have described. I wish it also to be understood that, in the apparatus described, I do not confine myself to the exact details set forth, for these must necessarily vary with the size of the matter to be printed, or with the greater or less rapidity with which the movements are to be executed.

It must also be understood that I do not claim, individually or separately, any of the parts of the apparatus or machinery; but I claim, first, in combination with the ink troughs and printing cylinder, the arrangementt of the cam cylinders, reciprocating cylinders, (two) operated by levers; and two cylinders for receiving, carrying and distributing the ink from the said trough to the said cylinders.

Second, I claim, in combination with the printing cylinders, two other cylinders, provided with a spring knife or saw, operated by cams, and also with ribs, or projections, and grooves, for the purpose of nearly severing the filaments of the paper, as it passes through between said rollers, and for the purpose also of creasing the paper for the more easily folding of it.

Third, I claim, in combination with the partially cutting and creasing cylinders, the different sized cylinders, C D, geared together for the purpose of tearing apart the partially cut paper—the cylinders, C, holding, and the increased motion of the cylinders, D, at their periphery (they being the larger), drawing the paper sufficiently to separate it.

Fourth, I claim, in combination with the selinders, the tunnel for guiding, and the wheel divided into a suitable number of compartments for receiving the sheets as they are delivered from the machine, the whole being constructed substantially as described and for the purposes set forth.

To Washburn Race, of Seneca Falls, N. Y., for Blind or Shutter Fasteners.

I claim the combination of the fast and free hooks with the inner plate, the same being arranged as set forth, in such manner that the fast hook forms the pivot for the free one, and the two are connected to the inner plate in such a manner, that the movement, breakage, or removal of the free hook, does not affect the security of the fastening, while, at the same time, the two hooks are secured to the inner plate by the fastening of the latter to the shutter. [See engraving of this invention in No. 49, Vol. 6, page

To S. P. Ruggles, of Boston, Mass., for improvement in Hand Stamps.

I claim securing the plate of a hand stamp to the shank or handle, by means of a universal ball and socket, or other joint, so as to allow the stamp to make a fair impression, at whatever angle it may strike the material to be stamped, as set forth.

Steamboat Question.---Pacific and Atlantic Tides.

MESSRS. EDITORS.—Respecting the "Steamboat Question," on page 389 of the last volume of the Scientific American, suppose the current equal to 5 miles per hour, and let us suppose, also, that a steamboat, or other body, placed in the current would acquire a velocity equal to that of the current, (not greater, as contended for in the "Floating Raft" question); such a body, although moving at the rate of five miles per hour, would be actually at rest with respect to the current. Suppose again that this steamboat will run fifteen miles per hour in still water, and be set in motion against the current, will not her distance be lessened by exactly the velocity of the current, that is to say, her speed will equal 10 miles per hour, and conversely, if running with the current, it will equal 20 miles per hour: this appears to me to be self-evident, and that the effect of the current on the paddles *is nothing*.

Your "Conversations on Mechanics" leads me to the query, whether there is any positive evidence of what has been so often asserted, that the Pacific is higher than the Atlantic. Were we to draw inferences from existing facts, it would seem that the reverse should be the case, and that the Gulf should be higher than the Pacific, else why this out-pouring of the waters between Florida and Cuba, which had been piled up in the Gulf by the equatorial trade winds. G. L. ANDERSON.

[We did not state what quantity of effect the current would have, in the article referred to by Mr. Anderson, for that we do not know—experiment alone can determine it—for in hydrodynamics there is still much to learn. If the paddles did not act on the water and pass through it to propel the boat, then the effect of the current would be nothing, as stated; but if the current does affect the velocity of the boat, it must affect all that belongs to it, which passes through the water; but the effect of a moderate current upon paddles having a high velocity, must be very small indeed.

Our opinion about the difference of height in the waters of the Pacific and the Atlantic, coincides with that of our correspondent. It was held at one time to be an established fact, owing to a bad survey of a French engineer, that the waters of the Red Sea were thirty feet above those of the Mediterranean: this was found, last year, to be a great error, by a new survey of the English engineers, when laying out the new railroad route for the East India Mail. It is our opinion that the same error will be found to have been committed in respect to the waters of the Atlantic and Pacific: we should like, at least, to have every doubt removed, and clear evidence of the fact or falsehood set before the public. Would it not be well to have a new survey made?

Milton's Daughters.

The Chatham Society has published papers, showing that Milton's eldest daughter, Anne, could not write; that his second daughter, Mary, could not spell; and that his third daughter, Deborah, was much in the same condition, though it has been so often said that she was her father's amanuensis, and that she read to him in, Hebrew, Greek, Latin, and Italian, without understanding a word of any one of the languages.

The Fair of the American Institute opened at Castle Garden, this city, on the 1st inst.

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TO CORRESPONDENTS.

G. P., of Mich.—We shall give something more about the inks by-and-bye.

C. H. R., of N. C.—We do not know where a second-hand screw lathe can be found: they are rarely ever offered for sale. $2 received and credited.

G. J. S., of Mass.—We think your Apple Pearing machine new in some respects, sufficient to warrant an application for a patent. You had better send a small model to this office. You cannot secure it in any other way than to make an application for a patent.

W. & Co., of O.—We know of nothing that will effectually prevent iron or steel from rusting, if exposed to dampness, but good copal varnish, thoroughly applied, and the metal exposed to a gentle heat in an oven, will be a good preventive.

J. P. M., of La.—We know of no new process for soldering, different from what we have published in previous volumes.

D. T., of N. Y.—We charge $1 for binding two volumes of the Scientific American in one cover.

M. C., of N. Y.—We will send you a copy of the History of Propellers, and pre-pay postage, for $1.

A. N. T., of N. Y.—If you will send your volumes all down we will endeavor to have them done for you by the time specified. For that fine list of subscribers accept our hearty thanks.

W. N. M., of Va.—A patent was issued to Robert C. Marsh, on the 26th Dec., 1845. "The American Miller," a book published by H. C. Baird, of Philadelphia, will give you the information desired about the mill stones.

A. C., of Con.—We do not remember about the article on the boiler, but we do not believe that a rotary steam boiler can ever be made to work so economically as a stationary one. We have never seen a lubricator made to act upon the same principle as the one you have sketched: it is ingenious, and strikes us very favorably. It must, however, be exceedingly well arranged and constructed to work well, but this can be done.

J. C. B., of Texas.—The submerged tidal water wheel is not patentable. In our Vol. 4, you will find two of them illustrated. McCormick's Reaper has received the greatest praise, and is perhaps the very one you want.

L. B., of Pa.—We are not agents for Lerow & Blodgett, and do not know anything about the matter. J. A. Lerow, resides in Fitchburg, Mass.

M. S., of Ohio.—Your pump is in our opinion decidedly novel, and would undoubtedly work, but whether advantageously or not, is a matter of experiment; the strap, in forcing out the water, would have the pressure to overcome, as any other lifter, independently of the friction produced by its crossing the partition.

J. D. J., of N. C.—We think your invention quite a novelty, but we doubt its utility. You could easily try an experiment on a small scale and satisfy yourself of what we already believe, that it will not do.

J. K. J., of Pa.—We do not exactly comprehend your meaning about the conical spring: no such communication appears on our files. Let us hear from you again. Thank you for the fine list of subscribers. $15 received.

Dr. R. W. W., of Ala.—We will renew our exertions to obtain the work you want, and will send it by mail if successful.

C. A., of Me.—We have examined the sketch of your improvements in soldering machines, and think a claim can be made upon it which will pass through the office; you had better send a model.

W. C., of C. W.—Will be on the look out for the information you require, and in case we succeed will inform you by letter.

J. M. B., of Ohio.—During the early history of railroads, various plans were adopted for ascending inclines—sometimes the tops of the rails were grooved and the wheels made to fit them. Again, the tread of the wheel was grooved, or a rack employed. Some have proposed the employment of supplementary rails and driving wheels similar to yours, these rails being raised, and of course the wheels made to fit. We do not think your plan patentable.

E. S. Z., of Md.—Not being able to give such information as you desire about the price of chisels, we refer you to Messrs. Couch & Alcott, Oriskany Falls, N. Y

T. B., of R. I.—We do not think the work you refer to could be of much service, you being unacquainted with the art. Cameras can be had of John Roach, Nassau street, at prices varying from $65 to $125.

H. B. S., of Vt.—You had better send a model of your invention, as we think it possesses novelty of a patentable character. When you send the model enclose the amount of government fee, $30, and the bill for our services will be rendered when the papers are prepared.

Money received on account of Patent Office business for the week ending September 27th.

H. M., of Pa., $30; E. S., of Mass., $50; J. S., of O., $20; J. H. B., of Ct., $15; D. T., of N. Y., $30; J. R., of N. Y., $30; A. W., of Mass., $45; J. C. L. & Co., of Ct., $50; P. & J. R. T., of Ct., $50; W. H. N., of Ct., $20; L. N., of Mass., $20; W. H. B., of R. I., $35; E. B. L., of N. Y., $40; T. N. B., of Mass., $15; A. C., of Ct., $30; J. Van B., of N. Y., $20; T. G., of Mass., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the patent office during the week ending September 27th.

T. B. W., of N. Y.; E. S., of Ct; J. H. B., of Ct.; J. S., of O.; W. N., of Ct.; V. B. S., of Ct.; J. R., of N. Y.; W. C. B., of N. Y.; S. H., of Mass.; J. B. S. H., of Mass.; J. M. T., of N. Y.; S. W. & R. M. D., of Mass.; E. L. H., of N. Y.; J. Van B., of N. Y.

Binding Volume 6.

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It is not generally understood that it is in strict violation of the Post Office Laws of this country to enclose in the paper a receipt for money on account of subscription: such being one of the restrictions with which publishers have to contend under our present odious Postal Laws, we hope our patrons will excuse us for not granting their request to send receipts in defiance of law, but consider their money has come to hand providing the paper comes to them regularly: our custom being never to continue the paper after the time for which it was prepaid has expired.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all: price in sheets, $2; bound, $2,75.

New Edition of the Patent Laws.

We have just received another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. We shall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying.

Postage on Books.

Subscribers ordering books or pamphlets through us are particularly requested to remit sufficient to pay postage, or we cannot attend to their orders. We are obliged to pay from 10 to 50 cents every time a pamphlet or book is sent by us through the post, and the justice of our demand is made apparent.

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American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible. Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.
MUNN & CO., Scientific American Office,
128 Fulton street, New York.

WOODWORTH'S PATENT PLANING MACHINE.—"Some estimate can be formed of the usefulness of the Woodworth Patent, and its title to favor, when one machine is computed to perform the labor of planing and grooving in one day that would require fifty days by a man, and which is supposed to reduce seventeenths the expense of such work in every building where the improved method is used. as it ere long will be, by the many millions of our own population, and in time over the civilized world. Every honest social system must shield such inventions, and every wise one seeks, undoubtedly, to encourage them; and to discountenance encroachments on their rights and defeat piracies of their useful labors, is calculated, in the end, to better the condition of every rank in society, and introduce, wider and faster, all the benefits of a superior state of civilization and the arts."—Judge Woodbury, Supreme Court of the United States, Decembef, 1845. 3 2*

1851 TO 1856.—WOODWORTH'S PAtent Planing Machines in New York and Northern Pennsylvania —Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machine. Price of a complete machine for planing, $150: for planing, tongueing and grooving, $700. For machines and rights to use them at Morrisania, Chester, Sag Harbor, Yonkers, Poughkeepsie, Whitehall, Plattsburg, Rouse's Point, Malone, Potsdam, Norwich. Ithaca, Attica, Tonawanda, Meadsville, New Castle. Warren, Towannda, Williamsport, Lock Haven, Wilkesbarre, Scranton, Carbondale, Honesdale, and the other unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 3 3*

TILTON's Patent Violin.—The undersigned having patented his Violin Improvement, is prepared to exhibit it to the public. Being now in New York, he may be found at No. 18 Park Place (Mr. J. Wiley's), where he will be pleased to see such gentlemen as take an interest in his invention. All communications addressed "Wm. B. Tilton & Co.," as above, or at Carrolton, Pickens Co., Ala.
3 12* WM. B. TILTON.

Foreign Patent Office.

MESSRS. MUNN & CO. transact business connected with Patents in all European countries, where this species of property is recognized. They take pleasure in referring parties to Smith Dunning, Jr., N. Y.; Ebenezer Barrows, N. Y.; Charles Starr, Bible House; William Van Anden, Poughkeepsie; Mortimer & Gardiner, Charleston, S. C.; William Bushnell, N. Y.; J. S. Prouty, Geneva, N. Y.; Gail Borden, Jr., Galveston, Texas, and to all others for whom they have done business.

KELLY & CO., New Brunswick, N. J., Foundry and Machine shop, manufacturers of stationary Engines, India Rubber Machinery, Mill Gearing, and stove castings &c. Articles made in the machinery line to order with dispatch and in the most workmanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

MARSHAL, BEMENT, & COLBY.—Manufacturers of Machinists' Tools, Callowhill street, west of Schuylkill 3d, Philadelphia, are ready to execute orders for Slide and Hand Lathes, Planing Machines, Upright Drills, Upright Boring Machines, Screw Cutting and Tapping Machines with Gates' Patent Dies and Taps, Gear Cutting Engines, Shaft-Pulleys, Hangers, &c. Orders for Machinery, Iron and Brass Castings and Patterns, promptly executed. E. D. Marshall, Wm. B. Bement, G. A. Colby. 1 4*

TO ENGINEERS.—A new Work on the Marine Boilers of the United States, prepared from authentic Drawings and Illustrated by 70 Engravings—among which are those of the fastest and best steamers in the country—has just been published by B. H. BARTOL, Engineer, and is for sale at the store of D. APPLETON & CO.,
1 12* 200 Broadway.

A LARGE LATHE FOR SALE CHEAP.—A new Lathe, 16 feet long, swings 31 inches, turns 12 1-2 feet; has 25 changes of screw gear, weighs about 5,000 lbs., has counter shaft, &c. Price $550, cash. Apply to S. C. HILLS, 12 Platt street, where the lathe can be seen. 51 4*

HUTCHINS' CRANK INDICATOR.—The subscriber having purchased the entire right of Hutchins' Patent Crank Indicator, would respectfully inform the public that he is ready to supply orders or sell territory. The Indicator has been used aboard the "Northerner," "Bay State," "Cataract," "Niagara," "Ontario," and "Lady of the Lake," the Captains and Engineers of which have all given their testimonials of approbation. Address G. S. WORMER, Steamboat Office, Oswego, N. Y. 51 6*

WANTED.—A situation is wanted by a person capable of planing and constructing furnaces for smelting iron ore, or erecting rolling mills. He is an experienced mechanic, thoroughly conversant with the iron business, and would like a permanent situation in some of the Southern States. Address M. E., Dover, N. J. 45 10*

MACHINE TOOLS FOR SALE.—The Maryland Machine Manufactory Co., having suspended operations, offer all their Machinery and Tools for sale. The assortment is large, has been in use but a short time, and is of the most improved kinds. For particulars apply to the undersigned.
GEORGE POE, Agt.,
Ellicott Mills P. O.
1 4t* Maryland.

WE HAVE FOR SALE, a bound set of the London Patent Journal; consisting of the first 10 volumes. It is a valuable work for the Inventor, Mechanic, or manufacturer. The last Volume comes up to near March 29, 1851. Price $30.
MUNN & CO.

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y.
2tf.

SHINGLE MACHINES—Manufactured to order at Albany, N. Y., at short notice: these machines are superior to any now in use: they are in use in several different States. All who wish for a good machine will do well to call or send their orders by mail, which will be promptly attended to.
2 2* A. KNOWLES.

ALCOTT'S LATHES.—I would say, in regard to the Alcott Lathe I purchased of you about a year ago, that it will perform all that it is represented to, and could I not get another I would not take $50 for it, so that you need not be afraid to recommend them. F. R. BARTLETT.
Galesburg, Ill. 2tf

PALMER'S ARTIFICIAL LEGS.—Manufactured at Springfield, Mass., and 376 Chestnut-st. Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmrr & Co. Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer; its construction is simple and its execution beautiful; and what is most important, those who have the misfortune to require a substitute for a natural limb and the good fortune to use it—all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, '51. 39 6meow*

CHILD'S PREMIUM SAW MILL.—To Plank Road Contractors and Lumbermen generally.—The subscriber having obtained a patent for improvements in circular saw mills, by which large timber can be cut with as great facility as small, and with one half less power, and one-third less waste of timber than by ordinary mills, offers mills and rights on reasonable terms. For illustration see Scientific American of March 15th, 1851. O, C. CHILD.
Granville, Ill., May 26, 1851. 39 9oew*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 43tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil stove Polish. The Drier improves in quality by age—is adapted to all kinds of paints and also to Printers' inks and colors. The above articles are compounded upon known chemical laws and are submitted to the public without further comment.—Manufactured and sold wholesale and retail at 114 John st. N. Y. and Flushing L. I. N. Y.; by
QUARTERMAN & SON
48tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.
At this Office.

MONTGOMERY MANUFACTURING CO.'S Iron Works, Montgomery Ala. Capital invested $250,000. Steam Engines and Boilers; Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use) sugar mills, saw and grist mill irons of most approved patterns; iron and brass castings of every variety, &c. Orders promptly executed and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m*

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers and manufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments 154 Fulton st. 42 3m*

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 44 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Easton Conn.; or WM. WOOD, Westport; Ct. All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 48tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

AARON KILBORN, No. 4 Howard st. New Haven—has on hand and is now finishing five 14 horse power engines; price including boiler and all fixtures $1200; twelve of from 12 to 6 horse power—all of the most approved patterns—iron bed frame and pulley balance wheel. Galvanized Chain and fixtures for chain pumps always on hand and for sale.
45 10*

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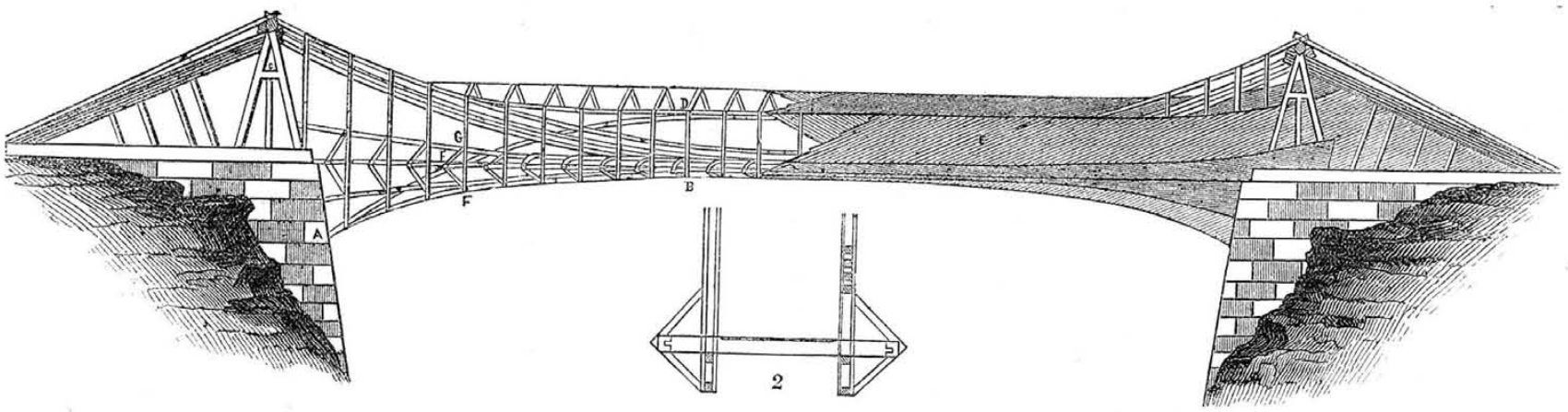
WHITE'S TUBULAR SUSPENSION BRIDGE.

The accompanying cut represents a new design for a bridge invented by Mr. Ammi White, Boston, and intended to supersede the necessity of piers in crossing our largest rivers. It represents one of 500 feet span, and can, with safety, be extended he says, even for railroad purposes 1,500 feet. The mode of construction is as follows:

Erect the towers on good and firm abutments, or on a rocky bank; then extend across the stream two or more sets of stringers, according to the number of road-beds needed. The number of stringers in each set will depend upon the amount of strength required in the bridge. Each stringer is made by selecting a tree of propers ize, which is sawed square and is tapered from the top to within about five feet of the base. This serves as a starting point, on which are spliced good sound boards, six or seven inches in width, on a curve of 40 feet in 500, tilll the required length and thickness is obtained, the whole terminating in a corresponding timber, which forms the other extremity. In securing one board upon another, care is taken to fix keys of wood or iron into mortices, made half into one board and half into the other, to prevent the stringer from elongating, which, with the additional bolts placed near the dowels, is as incapable of divulsion as the tree itself. This suspension chain or stringer is run across the stream by means of a wire cable and pulleys, and when locked and keyed fast in the towers, with the two back stays at C, is allowed to take a catenary curve. After a sufficient number have been extended across, the suspension rods are bolted to them and to the girders, which are made slightly arching, and to the floor-joist at B. The rafter is connected with the stringer and top of the suspension rod at D, to which is bolted the roof, constructed of double diagonal boarding. The floor, if a turnpike bridge, made of double diagonal planking bolted together, is then laid, and, in the capacity of cross-bracing, serves to render firm the whole structure. If a railroad bridge, the cross bracing is fitted under the floor-joist, in connection with the girders at B. By loading



either kind of bridge with double the weight it is required to sustain, the girders will be brought down to a level, and while the weight is on, the sides are covered with a double diagonal boarding, similar to that of the roof, both of which must be firmly attached to the towers and back-stays, to form a part of the strength of the bridge. The direct arches are formed by bolting together planks on the right curve, and in the above cut, one springs from the abutment at A, and connects with the stringer at the top of the suspension rod; the other starts from the same point and connects with the girder at B, both connecting in their course with the suspension rods. The side-guards, or braces, are formed by fitting a fender rave to the floor-joist, which extends over the girder several feet according to the length of the bridge. Short rafters connect at the fender rave at F, and the suspension rod, E G. These, together with the projecting floor-joists, are covered with double diagonal boarding. These braces prevent the bridge from vibrating. The back-stays, connected with the studs inserted in the sills of the towers, extend back on shore the required distance, and are firmly attached to stone posts, deeply set in the ground at the extremity of the sills at H.

Fig. 2 is a cross section showing the floor-joists, suspension rods, braces, &c.

Among the advantages claimed over other bridges are—strength, economy, and durability.

Strength. It is obvious, on careful examination of the above design, that in its construction are combined many of the well established principles of science, not the least important of which is that wood, of which the stringers are composed, will bear a greater strain according to its weight, than iron. Thus, too, the roof, instead of being a dead weight upon the bridge, like others of different construction, formed as it is, will sustain not only itself, but a large portion of the rest of the structure. Also, the double diagonal boarding of the sides being attached firmly to the suspension rods and towers, form, in connection with the roof, an immense tube, and being connected with the suspension chains, which it is impossible to pull apart, and being still farther rendered firm by the direct arch, together with the side guards, it will not break down, deflect, nor vibrate, with any weight it is required to sustain.

Economy.—That this structure is comparatively economical, is obvious from the facility with which materials for its construction can be procured; they consisting mainly of boards and planks, which can be put together much more cheaply and expeditiously than large timbers hitherto used. And even if the roof should be dispensed with, the inside, like the outside, being covered with a double diagonal boarding, leaves only the road bed exposed to the weather, which can be replaced without detriment to the main structure; also, being so constructed that it receives the strain longitudinally, a comparatively light structure will sustain an immense weight, besides dispensing with piers, which is by no means a small item in bridge building, especially over our broad, rapid rivers and deep ravines.

Durability.—Little need be said under this head, when we call to mind the well established fact that small timber, planks, and boards, when thoroughly seasoned and secured from the weather, will last vastly longer than large timber which cannot be thoroughly seasoned in any reasonable time, the consequence of which is, the inside becomes decayed, while the outside is apparently sound.

Persons interested in bridge building, and desirous of obtaining further particulars, may address Ammi White, 17 Prospect street, Boston, Mass., or Joshua P. Thayer, Cambridgeport, Mass.

Variations from Climate in Organic Life.

Organic life assumes new characteristics under new influences. The domestic animals of Europe were not found in this country on its discovery. They escaped from the Spaniards, and ran wild for centuries. In consequence, new and striking characteristics have been acquired in accommodation to the novel circumstances. The wild hog strikingly resembles the wild boar of Europe. The hog of the mountains of Parasmus resembles the wild boar of France. Instead of bristles, which the stock has from which he sprang, he has a thick fur, often crisp, and sometimes an undercoat of wool. Changes in color have taken place, and the anatomical structure has altered.

The ox has undergone similar changes; some in South America called "pelones" having a clothing of fine fur; others with a naked skin, like the Mexican, or Guinea dog. In Columbia, the practice of milking cows was given up, and the secretion of milk is confined to the period of suckling the calf.

The wild dog of the pampas does not bark like the domestic dog, but howls like a wolf. The wild cat has lost the sweet music of the caterwauling concert. The wild horse of the higher plains of South America is covered with long, shaggy fur of a uniform chestnut color. The sheep of the central Cordilleras produces a thick, matted, wooly fleece, which breaks off in tufts, and never re-appears. The goat has lost her large teats, and produces two or three kids annually. Similar changes occur in geese and gallinaceous fowls. Rumpless ones have sprung up, wanting the caudle vertebræ. Cats are frequent on White river without tails.

The fat-tailed sheep of Tartary loose their mass of fat on removal to Siberia. The African sheep has become like a goat covered with hair. The Wallachian sheep are different still. The wild horses of Siberia have anatomical differences from tame ones. It is a question among naturalists whether the dog and wolf belong to the same species, though it is referred to one species. But between these the differences are immense, from the gigantic St. Bernard, and the New Foundland, to the little lap dog in a lady's arms. The cow, the domesticated fowls, and pigeon, have put on infinite varieties of size, color, and character.

Yacht Racing in America and Europe.

Darius Davison writes us that it is his intention to build a yacht within the period of six months from the date, of a tonnage and cost equal to the tonnage and cost of the yacht "America;" said yacht to be built, modelled, and rigged different from any vessel or yacht afloat. And to be held ready at any time within the period of one year from the date (after being completed) to sail against any vessel or yacht, or number of vessels or yachts, now afloat in this country or Europe, that may be entered for the race. The trial of speed and sailing qualities to take place at any time chosen by a majority of the owners of vessels entered for the race, and to be run as they shall choose, for any distance, upon the ocean or inland waters, in a heavy or light breeze, with or against the wind. The owner of any vessel entered for the race, not satisfied with the time and circumstances chosen by a majority to make the trial of speed and sailing qualities, shall be at liberty to withdraw such vessel, at any time before one week preceding the time chosen for the contest. This provision is not to apply to the vessel entered by the subscriber; his yacht to be held ready to sail at any place and time within the period specified, and under any circumstances chosen by a majority of the owners of the other vessels. That only first class well-tried sail vessels or yachts may be entered for the race. The prizes to be sailed for are as follows:—

In case the subscriber's yacht win the race, the vessel which comes out second, and the last out in the race, to be forfeited to him. And in case his yacht is beaten, he will deliver her, with all her appurtenances to the winner of the race, as a prize.—[Tribune.

[We don't know Mr. Davison, but the above seems to be fair, yet we venture to predict that it will be a long long time before Mr. Davison makes good his bravado. He has published so many strange challenges about this thing and that thing he was going to do, all of which have yet to be done, that we have no confidence at present in what he puts forth as anything worthy of superiority. What has become of his steamship that was to sail to England in less than nine days, we believe, and with which he challanged the world for millions? The Tribune is a great paper for publishing and noticing all such *nothing-in-them novelties.*

Antidote for Arsenic.

Mr. Gideon Paul, of Detroit, Mich., writing to us, says, "the hydrated sesquioxide of iron is a better antidote for arsenic than the protoxide, and that, I am sorry to say, is not kept, as a general thing, in druggists' stores."

Sails of the Yacht America.

The sails of the yacht America were made of cotton duck, manufactured at Colt's factory Paterson, N. J. It is said that a vessel with cotton sails will sail one knot per hour faster than with canvas. It is closer and retains the wind much better.

NEW PROSPECTUS TO MECHANICS,

INVENTORS, AND MANUFACTURERS.

SEVENTH VOLUME OF THE

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